

## **DRAFT Case Study Synopsis**

### **Pesticide Post-Registration Assessment at Parlier**

#### **Elements of Case Studies**

1. Applicable legal context and policy standards (if any)
2. Responsible entities (government institutions)
3. Decision criteria
4. Relevant data and information
5. Relevant analyses of data and information
6. Characterization of data and analysis as it pertains to the decisions at hand
7. Allocation of any uncertainty – who bears the burden of uncertainty for health or economic analysis.
8. Policy instruments – the way that a decision is implemented (permit, regulation, etc.)
9. Public process
10. Salience to the audiences for this project

## Introduction

California requires the Department of Pesticide Regulation (DPR) to register pesticides before they may be used in the state. DPR conducts monitoring and assessment of pesticide use and may take actions to change registration provisions.

This case study focuses on DPR's work to assess risks from pesticides in ambient air in a rural community in California. This was an environmental justice pilot project. About 40 pesticides or breakdown products were monitored in the Fresno County community of Parlier and 22 were detected. The project also monitored air pollutants in partnership with the Air Resources Board.

The focus of this project was to obtain data about pesticide exposure in a highly impacted community. DPR is seeking to improve data about pesticide exposure.

### 1. Applicable legal context and policy standards (if any)

The Food and Agriculture Code, Division 6, Pest Control Operations, established pesticide management authorities for California in part to "provide for the proper, safe, and efficient use of pesticides essential for production of food and fiber and for protection of the public health and safety."

It mandates several actions by the state, including registration of pesticides to be sold or applied in California (Food and Agriculture Code 12811-12837), collection of fees to support the management program, labeling, certification of applicators, and tracking of pesticide use. County agricultural commissioners have responsibilities for approving certain uses of pesticides (Food and Agriculture Code 14006-14008). Key excerpts are below:

12824. The director shall endeavor to eliminate from use in the State any pesticide that **endangers the agricultural or nonagricultural environment**, is not beneficial for the purposes for which it is sold, or is misrepresented. In carrying out this responsibility, the director shall develop an **orderly program for the continuous evaluation of all pesticides actually registered**.

12825. Pursuant to Section 12824, the director, after hearing, may cancel the registration of, or refuse to register, any pesticide:

- (a) That has demonstrated serious uncontrollable adverse effects either within or outside the agricultural environment.
- (b) The use of which is of less public value or greater detriment to the environment than the benefit received by its use.
- (c) For which there is a reasonable, effective, and practicable alternate material or procedure that is demonstrably less destructive to the environment.
- (d) That, when properly used, is detrimental to vegetation, except weeds, to domestic animals, or to the public health and safety.
- (e) That is of little or no value for the purpose for which it is intended.

12826. If the director has reason to believe that any of the conditions stated in Section 12825 are applicable to any

registered pesticide and that the use or continued use of that pesticide constitutes an **immediate substantial danger to persons or to the environment**, the director, after notice to the registrant, may suspend the registration of that pesticide pending a hearing and final decision.

12841.2. (a) The Department of Pesticide Regulation shall create a program to **conduct outreach and education activities for worker safety, environmental safety, school safety, and proper pesticide handling and use**, to include, but not be limited to, the following issues and criteria:

- (1) The program shall encompass all communities, including urban, rural, and suburban communities.
- (2) All potential exposure opportunities, including household, industrial, and agricultural uses.
- (3) Rights and procedures of workers and those potentially exposed to pesticides and how to file confidential complaints

(b) The program shall be conducted in accordance with the department's environmental justice guidelines.

(c) The director shall appoint an advisory committee of interested stakeholders to provide input on the development and implementation of the program.

(d) This program shall compliment and not replace other outreach efforts currently in place not dealing with the issues addressed within this program

## **2. Responsible entities (government institutions):**

The Department of Pesticide Regulation of the California Environmental Protection Agency (Cal EPA) is responsible for decisions about registration of pesticides and for post-registration surveillance and review.

Individual county agricultural commissioners are responsible for enforcing pesticide use laws and regulations and placing any conditions on the use of restricted use pesticides.

For this case study, a local advisory group was recruited and provided advice to DPR throughout the project. This group participated in the selection of monitoring locations.

## **3. Decision criteria:**

The assessment conducted at Parlier was an optional activity by DPR and does not have formal or documented decision criteria. Actions are at the discretion of the agency.

## **4. Relevant data and information:**

Data about ambient concentrations of multiple pesticides and air pollutants were collected through a special, one-time year long study in 2006.<sup>1 2</sup>

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<sup>1</sup> California Environmental Protection Agency. Department of Pesticide Regulation. Environmental Justice Pilot Project. Pesticide Air Monitoring in Parlier. Second Progress Report Addendum. March 2007.

<sup>2</sup> California Environmental Protection Agency. Department of Pesticide Regulation. Environmental Justice Pilot Project. Pesticide Air Monitoring in Parlier. Second Progress Report. December 2006.

This project used a multi-chemical analytical method that had been developed during a previous project at Lompoc.<sup>3 4</sup> This allowed the agency to analyze multiple pesticides.

The agency used information about demographics, as well as pesticide use, to select a community that was highly impacted.

## **5. Relevant analyses of data and information:**

DPR developed screening levels for individual pesticides. Detected concentrations of individual pesticides were compared to these screening levels.

Key findings:

Organophosphate pesticides including diazinon and chlorpyrifos were one of two categories of pesticides identified as being of potential concern.

- Diazinon was monitored at concentrations higher than the screening level for acute effects in one instance.<sup>5</sup>
- Chlorpyrifos was present at concentrations near the screening level.
- A second category of pesticides of concern was fumigants. The study determined that MITC, a breakdown product, was widely distributed and detected at several monitors.

The department analyzed demographic data to identify Parlier as a community of concern from the perspective of environmental justice. It was selected based on demographic data and extensive pesticide use.<sup>6</sup>

## **6. Characterization of data and analysis as it pertains to the decisions at hand:**

Monitoring data were characterized relative to the screening values. This project was in response to an overall concern rather than a specific mandated decision.

In general, the DPR faces a higher burden to justify restrictions on use of pesticides once they are registered for use. Mitigation of any impacts through use restrictions is the preferred strategy, rather than cancellation of use.

The documents note that additional methods would helpful to consider the combined or cumulative burden from multiple pesticides.

## **7. Allocation of any uncertainty – who bears the burden of uncertainty:**

*Not addressed as yet for this case.*

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<sup>3</sup> Randy Sagawa, Jay Schreider, Pamela Wofford. 2003. Ambient Air Monitoring Results for Lompoc, California. Volume One: Executive Summary. Department of Pesticide Regulation. State of California. March 2003. EH03.02. 18 pages. [http://www.cdpr.ca.gov/docs/specproj/lompoc/exec\\_sum\\_march2003.pdf](http://www.cdpr.ca.gov/docs/specproj/lompoc/exec_sum_march2003.pdf)

<sup>4</sup> Department of Pesticide Regulation. Lompoc Pesticide Air Monitoring Executive Summary of the Multiple-Pesticide Sampling and Analysis Plan. Environmental Monitoring and Pest Management Branch. Sacramento. September 2000. <http://www.cdpr.ca.gov/docs/specproj/lompoc/execsum.pdf>

## **8. Policy instruments – the way that a decision is implemented (permit, regulation, etc.):**

DPR reports that the results of the Parlier case study influenced them to take three actions related to risk assessment and management of pesticides.<sup>7</sup>

Because of findings of concentrations above the screening level, DPR decided that diazinon would be a higher priority for further review and risk assessment by the medical toxicology group.<sup>8</sup>

Because it was detected at concentrations near the screening level, chlorpyrifos was identified for expedited risk assessment.

As a result of the detection of the breakdown product MITC, which was found most frequently in the monitoring study, DPR determined that it would be appropriate to put restrictions on use in place.

DPR reports that it has undertaken a target-sensing sprayer collaboration with the USDA to provide technical and financial support to producers who wish to implement conservation practices on their land. As part of its U.S. EPA-funded stone fruit IPM project in the Parlier area, DPR helped NRCS initiate Environmental Quality Incentive Program (EQIP) co-payments to stone fruit growers who switch to target-sensing sprayers that increase efficiency. In 2007, these EQIP contracts covered 3,250 acres belonging to 12 stone fruit and row crop growers (NRCS 2007).

Alternatives to pesticides and integrated pest management methods and growing methods that may reduce pests are discussed as possible approaches.

DPR reports that in May 2006, it awarded a two-year grant to University of California Cooperative Extension for vine mealy bug (VMB) pesticide studies in the Parlier area. Until recently, the recommended insecticide program for this invasive vineyard pest relied on the organophosphate pesticide chlorpyrifos. The project included laboratory and field efficacy testing of novel pesticides and is evaluating their cost-effectiveness as part of a VMB IPM system based on biological control and mating disruption with pheromones.

## **9. Public process**

The monitoring protocols and results are available to the public through documents posted at the DPR web site.

As noted, DPR engaged in an extensive process of public participation for this project that is much more extensive than what would be done in most cases. The analytical methods developed here will be used in other areas, such as a future project at Mendota to be carried out in cooperation with UC Davis, but the public participation process will not be.

This project contributed to the development of methods for community engagement.

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<sup>7</sup> Personal communications. DPR. 2009.

<sup>8</sup> Patricia Matteson, Larry Wilhoit, and Mark Robertson. Pest Management Assessment: Soil Fumigant and Organophosphate Insecticide Use and Alternatives – Parlier, Fresno County, California. Department of Pesticide Regulation. Environmental Justice Pilot Project. October 2007. PML-07-01. [http://www.cdpr.ca.gov/docs/pestmgt/pubs/ej\\_pma\\_final1-.pdf](http://www.cdpr.ca.gov/docs/pestmgt/pubs/ej_pma_final1-.pdf)

## **10. Salience to the audiences for this project:**

The assessment at Parlier appears to be of greatest interest to the representatives of the pesticide industry engaged in the CIPA project.

### **Questions to consider:**

What are the “cumulative” issues to consider?

Have they been articulated and how? What would we add?

Were they addressed?

Could they have been addressed under current authorities?

What additional data sources may have been brought to bear?

Case study objectives could include evaluations that account for pesticides and nonpesticides. One possible objective is to develop a process to quantify the cumulative risk from pesticides and nonpesticides. For example, what is the cumulative impact of pesticide and nonpesticide respiratory irritants, such as MITC and ozone?

Another possible objective could develop a process to mitigate a single pollutant with pesticide and nonpesticide sources, such as acrolein. Each of the case study elements should include an ARB/OEHHA nonpesticide component.